Listing of Claims:

1. (Previously Presented) A microfluidic device comprising:

a flow channel;

a pump operatively interconnected to said flow channel for moving a fluid in said flow channel; and

a damper operatively interconnected to said flow channel for reducing the fluid oscillation in said flow channel, wherein the damper comprises a cavity separated from the flow channel by a flexible membrane, the flexible membrane deflectable into the cavity to absorb energy in response to pressure oscillation within the flow channel, thereby reducing an amplitude of the pressure oscillation.

2. (Original) The microfluidic device of claim 1, further comprising a flow control valve operatively interconnected to said flow channel for closing and opening said flow channel.

3. (Original) The microfluidic device of claim 2, further comprising a T-junction.

4. (Original) The microfluidic device of claim 3, wherein said T-junction comprises an injection pool, a waste pool and a collection pool interconnected by said flow channel, and wherein flow channel further comprises said flow control valve proximal to said waste pool and said flow control valve proximal to said collection pool, said pump proximal to said injection pool and said damper proximal to said injection pool but posterial to said pump.

5. (Original) The microfluidic device of claim 4 further comprising a plurality of said dampers.

6. (Canceled).

7. (Previously Presented) The microfluidic device of claim 1 further comprising a constriction in a width of the flow channel positioned downstream of the flexible membrane.

8. (Original) The microfluidic device of claim 1 wherein the damper comprises an enlarged portion of the flow channel partially filled with a fluid, the fluid compressible to absorb energy in response to pressure oscillation within the flow channel, thereby reducing an amplitude of the pressure oscillation.

9. (Original) The microfluidic device of claim 1 wherein the damper comprises elastomeric material forming walls of the flow channel, the elastomeric material deflectable to absorb energy in response to pressure oscillation within the flow channel, thereby reducing an amplitude of the pressure oscillation.

10. – 17. (Canceled).

18. (Previously Presented) A damper for a microfluidic device comprising:

a flow channel formed in an elastomer material; and

an energy absorber adjacent to the flow channel and configured to absorb an energy of oscillation of a fluid positioned within the flow channel, wherein the energy absorber comprises a flexible elastomer membrane positioned between the flow channel and a cavity, the flexible membrane deflectable into the cavity to absorb the energy of oscillation in the flow channel.

19. (Canceled).

20. (Original) The damper of claim 18 wherein the energy absorber comprises a fluid positioned within an enlarged portion of the flow channel, the fluid compressible to absorb the energy of oscillation.

21. (Original) The damper of claim 18 wherein the energy absorber comprises elastomer material on the side walls of the flow channel, the elastomer material deflectable to absorb the energy of oscillation.

22. (Previously Presented) The damper of claims 18, 20, or 21 further comprising a constriction in a width of the flow channel downstream of the energy absorber.

23. – 26. (Canceled).

27. (Original) A method for sorting a material using a microfluidic device of claim 4.

28. (Original) The method of claim 27 comprising using a reversible sorting process.

29. – 33. (Canceled).

34. (New) A microfluidic device comprising:

a flow channel formed in an elastomer material;

a pump operatively interconnected to said flow channel for moving a fluid in said flow channel; and

a damper operatively interconnected to said flow channel for reducing the fluid oscillation in said flow channel, wherein the damper comprises a cavity separated from the flow channel by a flexible membrane, the flexible membrane deflectable into the cavity to absorb

energy in response to pressure oscillation within the flow channel, thereby reducing an amplitude of the pressure oscillation.

35. (New) The microfluidic device of claim 34, further comprising a flow control valve operatively interconnected to said flow channel for closing and opening said flow channel.

36. (New) The microfluidic device of claim 35, further comprising a T-junction.

37. (New) The microfluidic device of claim 36, wherein said T-junction comprises an injection pool, a waste pool and a collection pool interconnected by said flow channel, and wherein flow channel further comprises said flow control valve proximal to said waste pool and said flow control valve proximal to said collection pool, said pump proximal to said injection pool and said damper proximal to said injection pool but posterial to said pump.

38. (New) The microfluidic device of claim 37 further comprising a plurality of said dampers.

39. (New) The microfluidic device of claim 34 further comprising a constriction in a width of the flow channel positioned downstream of the flexible membrane.

40. (New) The microfluidic device of claim 34 wherein the damper comprises an enlarged portion of the flow channel partially filled with a fluid, the fluid compressible to absorb energy in response to pressure oscillation within the flow channel, thereby reducing an amplitude of the pressure oscillation.

41. (New) The microfluidic device of claim 34 wherein the damper comprises elastomeric material forming walls of the flow channel, the elastomeric material deflectable to

absorb energy in response to pressure oscillation within the flow channel, thereby reducing an amplitude of the pressure oscillation.

42. (New) A damper for a microfluidic device comprising:

a flow channel formed in an elastomer material; and

an energy absorber adjacent to the flow channel and configured to absorb an energy of oscillation of a fluid positioned within the flow channel, wherein the energy absorber comprises an encapsulated pocket of compressible fluid in a cavity a flexible elastomer membrane positioned between the flow channel and the cavity, the flexible membrane deflectable into the cavity to absorb the energy of oscillation in the flow channel.

43. (New) The damper of claim 42 wherein the energy absorber comprises a fluid positioned within an enlarged portion of the flow channel, the fluid compressible to absorb the energy of oscillation.

44. (New) The damper of claim 43 wherein the energy absorber comprises elastomer material on the side walls of the flow channel, the elastomer material deflectable to absorb the energy of oscillation.

45. (New) The damper of claims 42, 43, or 44 further comprising a constriction in a width of the flow channel downstream of the energy absorber.